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Is the lettuce salad breathing inside your fridge?

Photosynthesis and cellular respiration can be considered as two reverse functions. In the first, CO_2 is captured by the atmosphere, while in the second, CO_2 is produced and emitted back.

The functions of cellular respiration and photosynthesis continue to occur even in parts of plants for as long as they contain living cells.

So lettuce does indeed breathe in the refrigerator!



Changes in light lead to fluctuations in CO_2 concentration as the rate of photosynthesis changes.

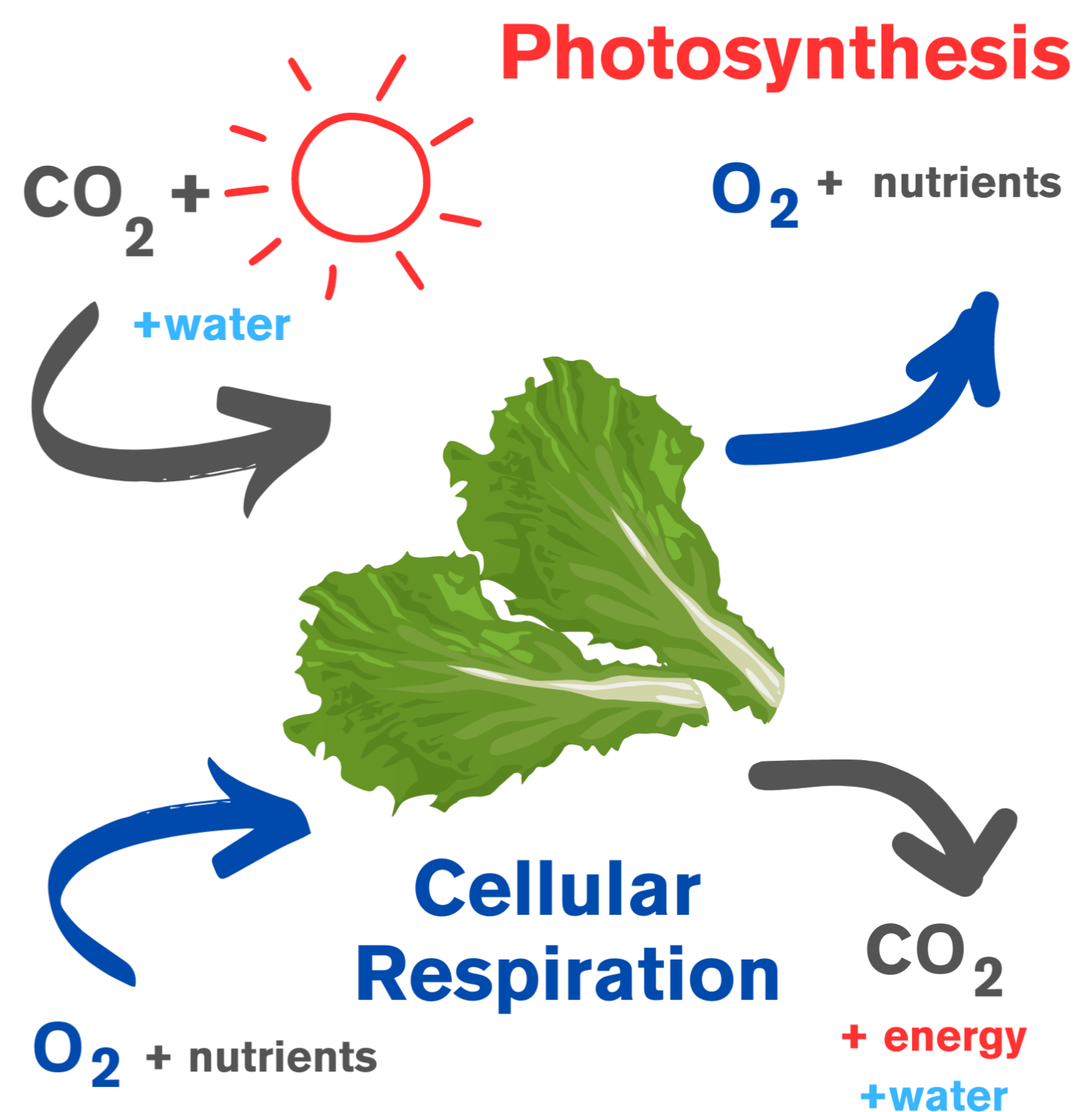
What experiments can we do?

A. We can easily reproduce the seasonal variations of CO_2 concentration in the atmosphere.

B. By varying the color of light we can examine the absorption at different wavelengths.

C. We can compare the function of living plants versus cut plant parts.

D. We can investigate CO_2 production in relation to the type, the area, or the orientation of a leaf.



A **CO_2 sensor** is placed inside a tiny greenhouse with controlled lighting. The values recorded by the sensor (CO_2 , humidity, temperature) are transmitted, with the help of an Arduino nano 33 BLE board and received on a mobile device. **Phyphox** application is used, suitably configured to display the values on real-time charts. If CO_2 value exceeds a set limit, a ventilation port is opened.

